

REMARKS/ARGUMENTS

Reconsideration and withdrawal of the rejections of the application and consideration and entry of this paper are respectfully requested in view of the herein remarks, which place the application in condition for allowance.

I. STATUS OF THE CLAIMS AND FORMAL MATTERS

Claims 1-99 are currently pending and are rejected in the Office Action mailed on April 14, 2010. Claims 1, 25, 51, and 72 are hereby amended and claims 2, 8-10, 32-34, 52, 77, and 83-85 are currently withdrawn. No new matter has been introduced. Support for this amendment is provided throughout the Specification as originally filed for example at page 11, lines 22-27.

II. RECORD OF TELEPHONE INTERVIEW

Initially, Applicants thank Examiner A. Momper for granting a telephonic interview on August 5, 2010 with Applicants' representatives B. McGuire and F. Dour.

During the interview, the cited references were discussed, specifically the structural differences between the claimed belt and the belts disclosed in Cicognani and Danhauer. Regarding Danhauer, the important distinction between the operating environment for the reference belt, that is, a dry environment, and the oil-wet operating environment for the present belt was discussed, thus supporting a lack of motivation to combine the references. In addition, Applicants' representatives presented arguments that, even if combined, the references fail to yield the claimed belt.

Also discussed was the unexpected result obtained from belts using the Applicants' construction for resistant inserts over the same construction using only glass fibers.

III. REJECTIONS UNDER 35 U.S.C. § 103

On page 4 of the Office Action, claims 1, 2, 4, 8-10, 25, 26, 28, 32-34, 51, 52, 54, 71-77, 79, and 83-85 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over U.S. Patent No. 4,099,422 to where the first material is glass fibers and the second material is carbon fibers, and the first material at least partially covers the second material; and ("Cicognani") in view of U.S. Patent Application Publication No. 2002/0098935 to Danhauer et al. ("Danhauer").

Claims 3, 27, 53, and 78 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Danhauer and further in view of U.S. Patent Application Publication No. 2004/0033857 to Welk et al. ("Welk").

Claims 5-7, 29-31, 55-57, and 80-82 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Danhauer and further in view of U.S. Patent No. 4,498,891 to Mashimo et al. ("Mashimo").

Claims 13, 14, 37, 38, 60, 61, 88, and 89 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Danhauer and U.S. Patent No. 6,945,891 to Knutson ("Knutson") and further in view of U.S. Patent No. 7,396,884 to Achten ("Achten").

Claims 15-18, 39-42, 50, 62-65, and 90-93 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Danhauer and further in view of U.S. Patent No. 7,056,249 to Osako et al. ("Osako").

Claim 43 is rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Danhauer and further in view of Mashimo.

Claims 19-22, 44, 45, 66-69, and 94-97 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Danhauer and Osako and further in view of Mashimo.

Claims 23, 98, and 99 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Danhauer, Osako and Mashimo, further in view of Knutson.

Claim 47 is rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Danhauer and further in view of Knutson.

Claims 24, 48, and 70 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Danhauer and further in view of U.S. Patent No. 5,306,213 to Nakajima et al. (“Nakajima”).

Claim 49 is rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Danhauer and Nakajima, and further in view of U.S. Patent Application Publication No. 2004/0127316 to Hashimoto et al. (“Hashimoto”).

Claims 1-3, 25-27, and 72-78 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Welk.

Claims 11-12, 35-36, 86, and 87 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Welk and further in view of Knutson.

Claims 13, 14, 37, 38, 88, and 89 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Welk and Knutson, in further view of Acten.

Claims 15-18, 39-42, 50, and 90-93 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Welk, and Osako.

Claims 19-21, 43-45, and 94-96 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Welk and Osako and further in view of Mashimo.

Claims 22, 23, and 97-99 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Welk and Osako in view of Knutson.

Claims 46 and 47 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Welk and Knutson.

Claims 24 and 48 are rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Welk and Nakajima.

Claim 49 is rejected under § 103(a) as allegedly being unpatentable over Cicognani in view of Welk and Nakajima in view of Hashimoto

Applicants respectfully traverse and request reconsideration and withdrawal of the rejections for at least the following reasons.

Independent claim 1 recites, *inter alia*:

Toothed belt for use with oil, the belt comprising:
a body...and
a plurality of resistant inserts;
wherein said **resistant inserts comprise fibers produced from at least a first and a second material wherein the first material comprises glass fibers and the second material comprises carbon fibers, and the first material at least partially covers the second material**; and
wherein said toothed belt is adapted to operate in substantially continuous contact with oil or partially immersed in oil.

Independent claim 25 recites, *inter alia*:

Timing control...comprising...**a toothed belt adapted for use in substantially continuous contact with oil or partly immersed in oil**, and means for maintaining said toothed belt in oil-wet condition; said toothed belt comprising a body...and a plurality of resistant inserts, wherein said **resistant inserts comprise fibers produced from at least a first and a second material wherein the first material comprises glass fibers and the second material comprises carbon fibers, and the first material at least partially covers the second material**.

Independent claim 51 recites, *inter alia*:

A toothed belt adapted for use in substantially continuous contact with oil or partly immersed in oil, the belt comprising a body...and a plurality of resistant inserts; wherein said resistant inserts are produced from at least a first and a second material wherein the first material comprises glass fibers and the second material comprises carbon fibers, and the first material at least partially covers the second material.

Independent claim 72 recites, *inter alia*:

A method of providing a belt for use with oil, the method comprising:
...providing **a toothed belt to operate in said oil-wet environment**, said belt comprising:
a body...and
a plurality of resistant inserts;
wherein said **resistant inserts comprise fibers produced from at least a first and a second material, wherein the first material comprises glass fibers and the second material comprises carbon fibers, and the first material at least partially covers the second material.**

Emphasis added. Applicants respectfully urge that Cicognani and Danhauer, alone or in combination, fail to disclose or render predictable the above recited features, and that none of the above-cited art of record cures these deficiencies.

Each of the independent claims, as presently amended, recites a toothed belt adapted for use in substantially continuous contact with oil or partly immersed in oil, or variations thereof, and include a plurality of **inserts compris[ing] fibers produced from at least a first and a second material, wherein the first material comprises glass fibers and the second material comprises carbon fibers, and the first material at least partially covers the second material.**

The claimed belt recites **resistant inserts compris[ing] fibers produced from at least a first and a second material, wherein the first material comprises glass fibers and the second material comprises carbon fibers, and the first material at least partially covers the second material.** Resistant inserts of this construction are not disclosed nor rendered predictable by

prior references. As evidenced by the present specification, belts produced with such inserts displayed an unexpected result of significantly longer life, when used in oil, than belts of the same construction using only glass fibers under the same test conditions. Test results as illustrated in at least Fig. 6 of the specification as originally filed show the superior performance of the inventive belt using inserts of carbon fibers wrapped in glass over belts using similarly constructed inserts comprising only one material, that is, an insert comprising a glass fiber core wrapped with additional glass fibers.

Applicants discovered the claimed belt, including a resistant insert, or cord, comprised of two different materials, overcame the deficiencies of prior belts operating in oil wet conditions. In particular, the use of resistant inserts in a toothed belt for use in oil makes it possible to produce narrower belts which are able to function in substantially continuous contact with oil and therefore can be used to replace chains and gears in existing systems without varying the dimensions of the system. *See* page 15, lines 2-20 of the Specification as originally filed. As indicated in Fig. 6 and Table 1, the claimed belt is able to operate for its lifetime in an oil environment, while maintaining the necessary mechanical properties and characteristics. Applicants submit that prior belts are not capable of similar performance.

Page 4 of the Office Action concedes that Cicognani fails to disclose resistant inserts comprising fibers made from first and second material. Accordingly, Applicants respectfully submit that the reference also fails to disclose resistant inserts comprising first and second materials **wherein the first material comprises glass fibers and the second material comprises carbon fibers, and the first material at least partially covers the second material** as required by the presently amended independent claims.

The Office Action relies on Danhauer to disclose a belt with resistant inserts produced from at least a first and second material and that the first material at least partially covers the second material. For the reasons of record and those presented below, Applicants respectfully submit that Danhauer is not analogous art, and therefore, one of ordinary skill in the art would not have a motivation to combine Cicognani with Danhauer. Additionally, combining the references for the purpose stated in the Office Action (“for the purpose of producing a desired balance of strength and flexibility”) is unrelated to the present invention. Furthermore, assuming Danhauer is found to be analogous art, the combination of Cicognani and Danhauer fails to disclose or render predictable at least the claimed inserts produced from first and second materials.

As amply presented in the response to the Office Action dated August 11, 2009, Danhauer is directed to a power transmission belt, specifically a v-ribbed belt. *Danhauer*, paragraph [0001]. V-ribbed belts track in a driven pulley or sheave and transmit power to one or more additional pulleys through the friction generated between the belt and the pulley or sheave. Operation of the belt in any environment that includes a friction reducing element, such as oil, is contrary to a skilled artisan’s understanding of the function of a v-belt. Accordingly, in solving a problem related to toothed belts in an oil-wet environment, a normally skilled artisan would not be directed to v-ribbed belts for the simple reason that operation in an oil-wet environment is contrary to the method of operation of v-belts.

Assuming *arguendo*, that Danhauer can be found to be analogous to the claimed belt, which Applicants submit it is not, combining Cicognani with Danhauer “for the purpose of producing a desired balance of strength and flexibility” as asserted in the Office Action is unrelated to the problem solved by claimed belt. The claimed belt is directed to a belt **adapted**

to operate in substantially continuous contact with oil or partially immersed in oil.

Applicants submit that the balance of strength and flexibility is achieved in virtually every automotive belt on the market by using glass cords alone.

The Danhauer reference fails to disclose **resistant inserts comprise fibers produced from at least a first and a second material** as asserted on page 4 of the Office Action. Danhauer also fails to disclose **the first material at least partially covers the second material**, as asserted on page 8 of the Office Action.

The Office Action cites to paragraph [0019] of Danhauer to support the alleged disclosure of **resistant inserts comprise fibers produced from at least a first and a second material** in the reference. Applicants respectfully submit that the cited portion of the reference fails to make such disclosure. The cited portion discusses the material from which the cords (inserts) may be made and recites, in part, “The cords 22 may be made from glass fiber, carbon fiber, steel, polyester, high tenacity rayon, polyaramide, or a blend of any of these materials.” Applicants submit that “a blend of any of these materials” does not disclose that the cords **comprise fibers produced from at least a first and a second material** as required. Instead the reference discloses that within the load carrying section of the belt, individual cords produced from any of the listed materials may be found. This is consistent with the figures and the remaining portions of the specification. The reference is silent on **resistant inserts [that] comprise fibers produced from at least a first and a second material** as claimed.

In asserting that Danhauer also discloses **the first material at least partially covers the second material**, the Office Action also cites to paragraph [0019] of the reference. Applicants disagree that such a teaching can be found.

The cited portion of the reference recites, “The reinforcing cords 22 are preferably helically wound cords having individual turns arranged in substantially equally spaced relation across the body.” One of ordinary skill in the art would recognize that “helically wound cords” describes the slightly angled orientation of the cords in the body of the belt. Helically winding the cord is necessary to allow each successive winding of the cord to be laterally spaced from the previous winding across the belt body. Because the cords are “substantially equally spaced relation across the belt body,” the angle of each winding must be substantially the same as is expected from the helical winding of the cords.

Accordingly, contrary to the assertion in the Office Action, Danhauer fails to disclose at least **fibers produced from at least a first and a second material...and the first material at least partially covers the second material** as required by the claims.

In rejecting claim 3, page 9 of the Office Action concedes Cicognani and Danhauer fail to disclose a first cord material entirely surrounds the second. Welk is relied upon to make such a disclosure. Applicants submit that Welk is non-analogous art and one of ordinary skill in the art would not be motivated to combine the reference with Cicognani and Danhauer.

Welk is directed to a low modulus belt for use as an accessory drive on vehicle engines. *Welk*, paragraphs [0001]-[0002]. One of ordinary skill in the art would recognize that a low modulus belt is flexible and lacks rigidity. In contrast, a high modulus belt will be relatively stiff. *Id.*, paragraph [0005].

Cicognani discloses the objectives of the invention are achieved by providing “an extremely rigid and practically non-deformable” covering to the toothed belt. *Cicognani*, column 1, lines 46-53. Disclosure in Cicognani of the desirability of a rigid covering actively discredits and teaches away from use of a low modulus belt as disclosed in Welk. Applicants

submit one of ordinary skill in the art, upon reading Cicognani, would be directed away from a combination with Welk.

Because the belt disclosed in Welk is for an accessory drive in vehicle engines, it is intended to operate outside the engine, and therefore not in **substantially continuous contact with oil or partially immersed in oil** as claimed. As amply discussed in prior responses, while a belt operating outside a vehicle engine cannot exclude belt contact with an oil mist or oil droplets from the environment, the belts are known to have a very low resistance to oil would experience a dramatic reduction in tensile strength over the expected life of the engine, and in this sense would fail if used in **substantially continuous contact with oil or partially immersed in oil** as required by the claims..

Accordingly, contrary to the assertion in the Office Action, one of ordinary skill in the art would not be motivated to combine Cicognani and Danhauer with Welk and, in fact, would be directed away from such a combination.

For at least the foregoing reasons, it is believed that revised independent claim 1 patentably distinguishes over the relied upon portions of Cicognani and Danhauer, either alone or in combination, and is therefore allowable. Independent claims 25, 51, and 72 are similar, or somewhat similar, in scope to claim 1, and are therefore allowable for similar, or somewhat similar, reasons. Further, claims 3-7 and 11-24, which depend from claim 1, claims 26-31 and 35-50, which depend from claim 25, claims 53-71, which depend from claim 51, and claims 73-76, 78-82, and 86-99, which depend from claim 72, are allowable as well.

Statements appearing above with respect to the disclosures in the cited references represent the present opinions of the Applicants' undersigned attorney and, in the event that the Examiner disagrees with any such opinions, it is respectfully requested that the Examiner

specifically indicate those portions of the respective reference providing the basis for a contrary view.

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CONCLUSION

In view of the foregoing, it is believed that the present application is in condition for allowance. Accordingly, Applicants' attorneys respectfully request that a timely Notice of Allowance be issued in this case.

Please charge any fees incurred by reason of this response and not paid herewith to Deposit Account No. 50-0320.

Respectfully submitted,
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